

	Type	L #	Hits	Search Text	DBs
1	IS&R	L1	11481	((422/83,88,101,50,56,58,68 .1,69,80,81) or (436/43,174,178,181)).CCLS.	US- PGPUB; USPAT
2	BRS	L2	1	1 and zero with head near8 space with extract\$	USPAT
3	BRS	L3	30	1 and (\$sorbent or sorptive near8 resin) same (membrane or dialysis near8 (bag or membrane)) same extract\$	USPAT
4	BRS	L4	1	1 and zero with head near8 space with extract\$	US- PGPUB; USPAT
5	BRS	L6	21	5 and (charcoal or resin or alumina or ion near8 exchange)	US- PGPUB; USPAT
6	BRS	L5	40	1 and (\$sorbent or sorptive near8 resin) same (membrane or dialysis near8 (bag or membrane)) same extract\$	US- PGPUB; USPAT
7	BRS	L7	441	(\$sorbent or sorptive near8 resin) same (membrane or dialysis near8 (bag or membrane)) same extract\$	US- PGPUB; USPAT
8	BRS	L8	42	7 and soil	US- PGPUB; USPAT
9	BRS	L9	7	7 and (syringe or septum) same (reactor or vessel or flask)	USPAT
10	BRS	L10	40	7 and (syringe or septum)	USPAT
11	BRS	L11	93	7 and (syringe or septum or valve or cap)	USPAT

	Type	L #	Hits	Search Text	DBs
1	IS&R	L1	11481	((422/83,88,101,50,56,58,68 .1,69,80,81) or (436/43,174,178,181)).CCLS.	US- PGPUB; USPAT
2	BRS	L2	1	1 and zero with head near8 space with extract\$	USPAT
3	BRS	L3	30	1 and (\$sorbent or sorptive near8 resin) same (membrane or dialysis near8 (bag or membrane)) same extract\$	USPAT
4	BRS	L4	1	1 and zero with head near8 space with extract\$	US- PGPUB; USPAT
5	BRS	L6	21	5 and (charcoal or resin or alumina or ion near8 exchange)	US- PGPUB; USPAT
6	BRS	L5	40	1 and (\$sorbent or sorptive near8 resin) same (membrane or dialysis near8 (bag or membrane)) same extract\$	US- PGPUB; USPAT
7	BRS	L7	441	(\$sorbent or sorptive near8 resin) same (membrane or dialysis near8 (bag or membrane)) same extract\$	US- PGPUB; USPAT
8	BRS	L8	42	7 and soil	US- PGPUB; USPAT

	Type	L #	Hits	Search Text	DBs
1	BRS	L1	1	zero near8 head near8 space near8 extract\$	US- PGPUB; USPAT
2	BRS	L2	1	zero with head near8 space with extract\$	US- PGPUB; USPAT
3	BRS	L3	11	zero same head near8 space same extract\$	US- PGPUB; USPAT
4	BRS	L4	11	zero same head near8 space same extract\$9	US- PGPUB; USPAT
5	BRS	L5	441	extract\$ same (sorptive near8 resin or \$sorbent) same (membrane or dialysis near8 (bag or membrane))	US- PGPUB; USPAT
6	BRS	L6	6203	(sorptive near8 resin or \$sorbent) same (membrane or dialysis near8 (bag or membrane))	US- PGPUB; USPAT
7	BRS	L7	2711	volatile same organic same compound same extract\$	US- PGPUB; USPAT
8	BRS	L9	626	6 and partition\$	US- PGPUB; USPAT
9	BRS	L8	31	6 and 7	US- PGPUB; USPAT
10	BRS	L10	12	7 and 9	US- PGPUB; USPAT
11	BRS	L12	0	4 and 6	USPAT

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NEWS	4	JAN 13	IPC 8 searching in IFIPAT, IFIUDB, and IFICDB
NEWS	5	JAN 13	New IPC 8 SEARCH, DISPLAY, and SELECT enhancements added to INPADOC
NEWS	6	JAN 17	Pre-1988 INPI data added to MARPAT
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NEWS	11	FEB 22	Updates in EPFULL; IPC 8 enhancements added
NEWS	12	FEB 27	New STN AnaVist pricing effective March 1, 2006
NEWS	13	FEB 28	MEDLINE/LMEDLINE reload improves functionality
NEWS	14	FEB 28	TOXCENTER reloaded with enhancements
NEWS	15	FEB 28	REGISTRY/ZREGISTRY enhanced with more experimental spectral property data
NEWS	16	MAR 01	INSPEC reloaded and enhanced
NEWS	17	MAR 03	Updates in PATDPA; addition of IPC 8 data without attributes
NEWS	18	MAR 08	X.25 communication option no longer available after June 2006
NEWS	19	MAR 22	EMBASE is now updated on a daily basis
NEWS	20	APR 03	New IPC 8 fields and IPC thesaurus added to PATDPAFULL
NEWS	21	APR 03	Bibliographic data updates resume; new IPC 8 fields and IPC thesaurus added in PCTFULL
NEWS	22	APR 04	STN AnaVist \$500 visualization usage credit offered
NEWS	23	APR 12	LINSPEC, learning database for INSPEC, reloaded and enhanced
NEWS	24	APR 12	Improved structure highlighting in FQHIT and QHIT display in MARPAT
NEWS	25	APR 12	Derwent World Patents Index to be reloaded and enhanced during second quarter; strategies may be affected
NEWS EXPRESS			FEBRUARY 15 CURRENT VERSION FOR WINDOWS IS V8.01a, CURRENT MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP), AND CURRENT DISCOVER FILE IS DATED 19 DECEMBER 2005. V8.0 AND V8.01 USERS CAN OBTAIN THE UPGRADE TO V8.01a AT <a href="http://download.cas.org/express/v8.0-Discover/">http://download.cas.org/express/v8.0-Discover/</a>
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=> s zero (8w) head (8w) space (8w) extract?  
L1 2 ZERO (8W) HEAD (8W) SPACE (8W) EXTRACT?

=> s zero (8w) headspace (8w) extract?  
L2 13 ZERO (8W) HEADSPACE (8W) EXTRACT?

=> s zero (s) headspace (s) extract?  
L3 17 ZERO (S) HEADSPACE (S) EXTRACT?

=> s zero (s) head (8w) space (s) extract?  
L4 3 ZERO (S) HEAD (8W) SPACE (S) EXTRACT?

=> s l3 and partition?  
L5 2 L3 AND PARTITION?

=> s volatile (s) organic (s) compound  
L6 34018 VOLATILE (S) ORGANIC (S) COMPOUND

=> s l3 and ?sorberit  
L7 1 L3 AND ?SORBENT

=> display l7 1 ibib abs

L7 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2003:678406 CAPLUS  
DOCUMENT NUMBER: 139:218553  
TITLE: **Zero headspace extractor**  
and method for determining partitioning and  
contaminant release rates of volatile and  
semi-volatile compounds  
INVENTOR(S): Soni, Bhupendra K.; Hayes, Thomas D.  
PATENT ASSIGNEE(S): USA  
SOURCE: U.S. Pat. Appl. Publ., 12 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
US 2003162303	A1	20030828	US 2002-80475	20020222
PRIORITY APPLN. INFO.:			US 2002-80475	20020222
AB A method and device for measuring release rates of contaminants in at least one of a fast release mode and a slow release mode in which a volatile liquid sample is introduced into a sealed transparent reactor vessel having at least one <b>sorbent</b> contained within the transparent reactor vessel and a separator such as a dialysis bag for preventing direct contact between the at least one <b>adsorbent</b> and the at least one volatile liquid sample in the transparent reactor vessel, whereby substantially zero headspace is maintained within the transparent reactor vessel. At least one solvent soluble constituent present in the at least one volatile liquid sample is passed through the separator, resulting in sorption of the at least one solvent soluble constituent by the at least one <b>sorbent</b> . In accordance with one preferred embodiment, the separator is a dialysis bag contained in the transparent reactor vessel into which the resin is placed. The at least one solvent soluble constituent is then removed from the at least one <b>sorbent</b> through the separator.				

=> display l3 1-17 ibib abs

L3 ANSWER 1 OF 17 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2006:262118 CAPLUS  
DOCUMENT NUMBER: 144:304198  
TITLE: Disposable remote **zero headspace extractor**  
INVENTOR(S): Hand, Julie J.; Roberts, Mark P.  
PATENT ASSIGNEE(S): The United States of America as Represented by the United States Department of Energy, USA  
SOURCE: U.S., 7 pp.  
CODEN: USXXAM  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 7014817	B1	20060321	US 2001-966568	20010927
PRIORITY APPLN. INFO.:			US 2001-966568	20010927

AB The remote **zero headspace extractor** uses a sampling container inside a stainless steel vessel to perform toxicity characteristics leaching procedure to analyze volatile organic compds. The system uses an in line filter for ease of replacement. This eliminates cleaning and disassembly of the extractor. All connections are made with quick connect fittings which can be easily replaced. After use, the bag can be removed and disposed of, and a new sampling container is inserted for the next extraction

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 2 OF 17 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:678406 CAPLUS

DOCUMENT NUMBER: 139:218553

TITLE: **Zero headspace extractor**  
and method for determining partitioning and  
contaminant release rates of volatile and  
semi-volatile compounds

INVENTOR(S): Soni, Bhupendra K.; Hayes, Thomas D.

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 12 pp.  
CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
US 2003162303	A1	20030828	US 2002-80475	20020222
PRIORITY APPLN. INFO.:			US 2002-80475	20020222

AB A method and device for measuring release rates of contaminants in at least one of a fast release mode and a slow release mode in which a volatile liquid sample is introduced into a sealed transparent reactor vessel having at least one sorbent contained within the transparent reactor vessel and a separator such as a dialysis bag for preventing direct contact between the at least one adsorbent and the at least one volatile liquid sample in the transparent reactor vessel, whereby substantially zero headspace is maintained within the transparent reactor vessel. At least one solvent soluble constituent present in the at least one volatile liquid sample is passed through the separator, resulting in sorption of the at least one solvent soluble constituent by the at least one sorbent. In accordance with one preferred embodiment, the separator is a dialysis bag contained in the transparent reactor vessel into which the resin is placed. The at least one solvent soluble constituent is then removed from the at least one sorbent through the separator.

L3 ANSWER 3 OF 17 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:298482 CAPLUS

DOCUMENT NUMBER: 139:249626

TITLE: Identification and leaching characteristics of sludge generated from metal pickling and electroplating industries by toxicity characteristics leaching procedure (TCLP)

AUTHOR(S): Vijay, Ritesh; Sihorwala, T. A.

CORPORATE SOURCE: National Environmental Engineering Research Institute, Nagpur, India

SOURCE: Environmental Monitoring and Assessment (2003), 84(3), 193-202

CODEN: EMASDH; ISSN: 0167-6369

PUBLISHER: Kluwer Academic Publishers

DOCUMENT TYPE: Journal

LANGUAGE: English

AB One of India's major concerns is the increasing level of land pollution

largely due to the uncontrolled disposal of industrial solid and hazardous waste. With rapid industrialization, the generation of industrial solid and hazardous waste has increased appreciably and the nature of waste generated has become complex. Their impacts on the ecol. bodies are noticeable. The article describes the details of studies conducted using Toxicity Characteristics Leaching Procedure (TCLP), to estimate the toxicity effects of the metals viz., Cr, Zn, Mn, Fe, Ni, Co, and Cu by the **Zero Headspace Extractor** for the sludges generated from effluent treatment plant of steel tube, wire and plating industries on environment constituents like groundwater, surface water and land. TCLP dets. the mobility of organic and inorg. analytes of liquid, solid or multiphase waste from hazardous solid wastes in the form of primary and secondary exts. These exts. are mixed in equal volume proportion and analyzed by Direct Reading 2000 spectrophotometer. The amount of heavy metals observed during the studies in the leachates were found and the results were compared with Hazardous Waste categories as per Indian Stds., TCLP regulatory limits given by United States Environment Protection Agency (USEPA) and Germany Leachate Quality Stds. and it was observed that they were on higher side, needing a proper preventive concept of sludge management including handling, treatment, recovery and disposal.

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 4 OF 17 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:507003 CAPLUS

DOCUMENT NUMBER: 137:237277

TITLE: Evaluation of **zero headspace extractor** (ZHE) used to determine leachability of volatile organic compounds

AUTHOR(S): Carron, John; Hendry, Judith; Morse, David; Mills, Janet

CORPORATE SOURCE: Laboratory Services Branch, Ministry of the Environment, Etobicoke, ON, M9P 3V6, Can.

SOURCE: EnviroAnalysis 2002, Proceedings of the Biennial International Conference on Monitoring and Measurement of the Environment, 4th, Toronto, ON, Canada, May 27-30, 2002 (2002), 271-276. Editor(s): Clement, Ray; Burk, Bob. EnviroAnalysis 2002 Conference Secretariat: Ottawa, Ont.  
CODEN: 69CUUP; ISBN: 0-7709-0470-X

DOCUMENT TYPE: Conference

LANGUAGE: English

AB This study presents a set of results using spiked buffer fluid to determine volatile organic compds. (VOCs) in leachates by using the **Zero Headspace Extractor** (ZHE). The precision of this ZHE technique is demonstrated using Headspace Capillary Gas Chromatog. Mass Spectrometry. Using a sediment, where the bulk waste concentration indicated that an exceedance could be met, the ZHE was performed. Anal. of the leachate shows that an exceedance has been met.

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 5 OF 17 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:749495 CAPLUS

DOCUMENT NUMBER: 133:354588

TITLE: Toxicity characteristics leaching procedure (TCLP) studies for characterization of hazardous solid wastes from pickling and electroplating industries (case studies) and design of secured landfill disposal system

AUTHOR(S): Sihorwala, T. A.; Vijay, Ritesh

CORPORATE SOURCE: Dep. Civil Eng. & Appl. Mech., Shri G.S. Inst. Tech. & Sc., Indore (M.P.), 452 003, India

SOURCE: Proceedings of the International Conference on Solid



Waste Technology and Management (1999), 15th,  
1B/11-1B/18

CODEN: PICSFK; ISSN: 1091-8043

PUBLISHER: Widener University School of Engineering

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The rapid growth of industries has entirely changed the scenario of hazardous solid waste management in India. The quantity of hazardous wastes generated has increased appreciably and the nature of waste generated has become complex. Impacts on ecol. bodies are noticeable. The paper describes the details of studies conducted using the Toxicity Characteristics Leaching Procedure to estimate the toxicity of metals, viz. Cr, Zn, Mn, Fe, Ni, Co and Cu, by the **zero headspace extractor** for sludges generated from effluent treatment plants of steel tube, wire, and plating industries on environmental constituents like groundwater, surface water, and land. The Toxicity Characteristics Leaching Procedure detcs. the mobility of organic and inorg. analytes of liquid, solid, or multi-phasic wastes from hazardous solid wastes in the form of primary and secondary exts. These exts. are mixed in equal volume proportion and analyzed by a Direct Reading 2000 spectrophotometer. The amount of heavy metals observed during studies in the leachates was compared with hazardous waste categories as per Indian Stds., TCLP regulatory limits given by the United States Environmental Protection Agency (USEPA), and Germany Leachate Quality Stds., and it is observed that they are on the high side, needing a proper preventive concept for disposal by the secured landfill method. Landfills are usually made up of cells in which a discrete volume of the hazardous waste is kept in isolation by suitable barriers. As per USEPA min. technol. requirements for hazardous waste landfill design and construction, the landfills must have (1) double lines, (2) leachate collection and removal systems, (3) leachate detection systems, and (4) closure and final cover. Taking all these aspects into consideration, the design of secured landfill systems at industrial sites under study is projected, yielding environmentally friendly and caring concepts of hazardous waste management.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 6 OF 17 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:528286 CAPLUS

DOCUMENT NUMBER: 133:182523

TITLE: Evaluation of headspace GC and purge and trap GC-MS  
for the analysis of volatiles in TCLP leachates  
AUTHOR(S): Carron, John; Kanert, George; Mills, Janet; Morse,  
David; Whitman, Doug

CORPORATE SOURCE: Laboratory Services Branch, Physical Chemistry and  
Litigation Services, Ontario Ministry of the  
Environment, Etobicoke, ON, M9P 3V6, Can.

SOURCE: EnviroAnalysis 2000, Proceedings of the Biennial  
International Conference on Monitoring and Measurement  
of the Environment, 3rd, Ottawa, ON, Canada, May 8-11,  
2000 (2000), 285-290. Editor(s): Clement, Ray; Burk,  
Bob. EnviroAnalysis 2000 Conference secretariat:  
Ottawa, Ont.  
CODEN: 69AFGO

DOCUMENT TYPE: Conference

LANGUAGE: English

AB Proposed changes to Ontario Regulation 347 introduce a new leachate test which is more accurate when testing organic compds., the Toxicity Characteristic Leaching Procedure (TCLP). To provide for this change, this study presents results for a spiked solid waste sample extd . using a **zero headspace extractor** (ZHE) and EPA Method 1311 fluid Number 1. Precision of purge-and-trap gas chromatog.-mass spectrometry gas chromatog.-mass spectrometry and headspace flame ionization detection/electron capture detection capillary

gas chromatog. were demonstrated with volatile compds. in water and leachate at the same concns.

L3 ANSWER 7 OF 17 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1993:45006 CAPLUS

DOCUMENT NUMBER: 118:45006

TITLE: Soil sorption of volatile and semivolatile organic compounds in a mixture

AUTHOR(S): Walton, Barbara T.; Hendricks, Marilyn S.; Anderson, Todd A.; Griest, W. H.; Merriweather, R.; Beauchamp, J. J.; Francis, C. W.

CORPORATE SOURCE: Environ. Sci. Div., Oak Ridge Natl. Lab., Oak Ridge, TN, 37831-6038, USA

SOURCE: Journal of Environmental Quality (1992), 21(4), 552-8  
CODEN: JEVQAA; ISSN: 0047-2425

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Studies were conducted to evaluate lipophilicity as a predictor of sorption for a mixture of organic compds. with high vapor pressures commonly present at hazardous waste sites. Sorption partition coeffs. ( $K_p$ ) for the mixture of 16 volatile and semivolatile organic compds. were measured on a Captina silt loam (Typic Fragiudult) and a McLaurin sandy loam (Typic Paleudults) using a **zero headspace extractor**

. The exptl.  $K_p$  was determined for acrylonitrile, furan, Me Et ketone, THF, C<sub>6</sub>H<sub>6</sub>, PhMe, p-xylene, PhCl, chloroform, nitrobenzene, 1,2-dichlorobenzene, 1,2,3-trichloropropane, CCl<sub>4</sub>, C<sub>2</sub>H<sub>2</sub>B<sub>2</sub>, 1,2,4,5-tetrachlorobenzene, and hexachlorobenzene on each of the 2 soils. The  $K_p$  values were generally lower in the McLaurin sandy loam, which had a lower organic C content ( $0.66 \pm 0.04\%$ ) than the Captina silt loam (organic C content  $1.49 \pm 0.06\%$ ).

Sorption was normalized to soil organic C content of the soil by converting  $K_p$  for each compound and soil to  $K_{oc}$ . Weighted regression analyses of  $K_{oc}$  observed for the compds. in the mixture on  $K_{oc}$  predicted from the n-octanol/water partition coefficient ( $K_{ow}$ ) for individual compds. yielded a pooled, weighted regression of  $K_{oc}$  observed  $1.084 + 0.457 K_{oc} = \text{predicted}$ ,  $n = 29$ ,  $r = 0.88$ . Statistical anal. indicated that the slope of  $0.457 \pm 0.046$  (estimated standard error) was significantly less than 1.00, indicating

that

soil sorption of nonionic organic compds. differed from that predicted for the same individual compds. based on  $K_{ow}$ . The results indicate that predictive equations for sorption of individual organic compds. can be applied to mixts. of volatile and semivolatile organic compds. in soils when log  $K_{ow}$  are in a range from approx. 1 to 3; however, outside this range, a correction factor may be needed.

L3 ANSWER 8 OF 17 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1992:15105 CAPLUS

DOCUMENT NUMBER: 116:15105

TITLE: Concentration of water-soluble volatile organic compounds from aqueous samples by azeotropic microdistillation

AUTHOR(S): Bruce, Mark L.; Lee, Richard P.; Stephens, Marvin W.

CORPORATE SOURCE: Wadsworth/ALERT Lab., Inc., North Canton, OH, 44720, USA

SOURCE: Environmental Science and Technology (1992), 26(1), 160-3

CODEN: ESTHAG; ISSN: 0013-936X

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Methanol and other similar water-soluble volatile organic compds. in **zero headspace exts.** and other aqueous matrixes can be analyzed by azeotropic microdistn., followed by gas chromatog. separation and detection. The method detection limits for methanol, 1-butanol, and 2-methyl-1-propanol are at least 1 order of magnitude below the current land disposal treatment stds. using the toxicity characteristic

leaching procedure (TCLP). A microdistn. system was developed to address the limitations of direct sample injection, purge-and-trap, and other azeotropic distillation systems. Sample volume requirements range from 10 to

40

mL. The concentration factors range from 70 to 230 (depending on the analyte) with a 40-mL sample. The total distillation time is .apprx.5 min. Typical detection limits are between 5 and 15 µg/L when the distillate is analyzed by gas chromatog. with flame ionization detection.

L3 ANSWER 9 OF 17 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1988:621639 CAPLUS

DOCUMENT NUMBER: 109:221639

TITLE: The use of cryogenic size reduction to improve purgeable priority pollutant determination in soil samples

AUTHOR(S): Phillips, J. H.; Potera, C. A.; Michalko, P. M.; Frost, J. H.

CORPORATE SOURCE: Air Prod. and Chem., Inc., Allentown, PA, 18195, USA

SOURCE: Journal of Research of the National Bureau of Standards (United States) (1988), 93(3), 292  
CODEN: JRN BAG; ISSN: 0160-1741

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The use of cryogenic grinding as a size reduction technique for the preparation of

soil samples for anal. for volatile priority organic pollutants is described. Clays (used as the synthetic soil matrix), spiked with the volatile organic, were size reduced at ambient temperature and at cryogenic (-196°) temperature. The sample was then extd. in a **zero headspace extractor** and the leachate was analyzed by purge and trap gas chromatog./mass spectrometry. Cryogenic size reduction improved recoveries 3-fold over ambient and min. size reduction techniques.

L3 ANSWER 10 OF 17 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1986:465814 CAPLUS

DOCUMENT NUMBER: 105:65814

TITLE: Observations on the Environmental Protection Agency's proposed new test to replace its current EP toxicity test

AUTHOR(S): Stevenson, Ronald T.

CORPORATE SOURCE: Mobay Chem. Corp., Baltimore, MD, 21224, USA

SOURCE: Ceramic Engineering and Science Proceedings (1986), 7(5-6), 688-92  
CODEN: CESPDK; ISSN: 0196-6219

DOCUMENT TYPE: Journal

LANGUAGE: English

AB As a possible alternative to the EPA's EP toxicity test in the Toxicity Characteristics Leaching Procedure (TCLP), , a sample is passed through a 9.5-mm sieve, and a 0.1 N NaOAc buffer (pH 5) is used as a leaching solution. A **zero headspace extractor** is used when the sample is analyzed for volatile compds. TCLP takes 18 h and there is no need for further pH adjustment compared to the EP toxicity test which takes 24 h and requires multiple pH adjustments.

L3 ANSWER 11 OF 17 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 2005(27):11055 COMPENDEX

TITLE: Headspace solid-phase microextraction (HS-SPME): A microscale sampling technique for determination of monoterpene hydrocarbons in coniferous needles by gas chromatography/mass spectrometry (GC/MS).

AUTHOR: Chvilickova, I. (Department of Chemistry and Biochemistry Mendel University of Agriculture and Forestry in Brno, 61300 Brno, Czech Republic); Kuban, V.

SOURCE: Analytical and Bioanalytical Chemistry v 378 n 1  
January 2004 2004.p 150-158  
CODEN: ABCNBP ISSN: 1618-2642

PUBLICATION YEAR: 2004  
DOCUMENT TYPE: Journal  
TREATMENT CODE: Experimental  
LANGUAGE: English

AN 2005(27):11055 COMPENDEX

AB A **headspace** solid-phase microextraction (HS-SPME) technique has been applied for the microscale sampling (single needle for *Picea omorica*, two needles of *Picea abies*) of volatile monoterpene hydrocarbons (MTHs) from conifer needles. A simple device consisting of a closed **headspace** vial equipped with an integral cutting device was used for the collection, homogenisation, and HS-SPME sampling. The highly sensitive gas chromatographic/mass spectrometric (GC/MS) analyses (LODs in tenths of ng g<sup>-1</sup> FW were obtained for 3\*S/N criteria) of individual needles confirmed the space distribution of MTHs in different parts of a single sprout (base, centre, apex) and among the left, central and right sprout of a whorl. The highest concentrations of MTHs were found in the apical (leading) sprout (S) of a whorl. The serious increase of MTHs content near the base of the left (SNL) sprout and nearly zero concentrations in the central parts of both the side sprouts of *P. abies* corresponded to the morphology of the whorl. On the other hand, similar concentrations of MTHs were found in the apex of the side (SNL and SNR) sprouts. The distributions of MTHs obtained after HS-SPME and solvent **extraction** followed the similar trends for both species. HS-SPME is more suitable for the evaluation of distribution of volatiles in microscale experiments due to the more precise separation of needles into correct categories and elimination of "averaging" effects of the larger quantities of needles needed for the solvent **extraction**. The precision was improved by one order of magnitude due to the reduction of uncontrolled losses of volatile species during the sample treatment. \$CPY Springer-Verlag 2003. 29 Refs.

L3 ANSWER 12 OF 17 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 2005(23):4935 COMPENDEX

TITLE: Evaluation of the stability of arsenic immobilized by microbial sulfate reduction using TCLP extractions and long-term leaching techniques.

AUTHOR: Jong, Tony; Parry, David L.

SOURCE: Chemosphere v 60 n 2 July 2005 2005.p 254-265  
CODEN: CMSHAF ISSN: 0045-6535

PUBLICATION YEAR: 2005  
DOCUMENT TYPE: Journal  
TREATMENT CODE: Experimental  
LANGUAGE: English

AN 2005(23):4935 COMPENDEX

AB An investigation was conducted to evaluate the stability or leachability of arsenic immobilized by microbial sulfate reduction. Anoxic solid-phase samples taken from a bioreactor previously used to treat metal and As contaminated water using sulfate reducing bacteria (SRB) were subjected to the toxicity characteristic leaching procedure (TCLP) and long-term column leaching tests. The results from TCLP experiments showed that the concentration of As leached from solid-phase sulfide material (SSM) samples after an 18 h **extraction** time was <300 mug l<sup>-1</sup>, which is below the current maximum Australian TCLP leachate value for As, and thus would not be characterized as a hazardous waste. In terms of percent total As leached, this was equivalent to <8.5% for SSM samples initially containing 61.3 mg kg<sup>-1</sup> As. The levels of As **extracted** by the TCLP was found to be significantly lowered or underestimated in the presence of dissolved oxygen, with As concentrations increasing with decreasing **headspace**-to-leachant volume ratios. The concentration of As was also consistently higher in nitrogen purged **extractions** compared to those performed in air. This was

attributed to the dissolution of Fe-sulfide precipitates and subsequent oxidation of Fe(II) ions and precipitation of ferric(hydr)oxides, resulting in the adsorption of soluble As and corresponding decrease in As concentrations. According to the experimental data, it is recommended that TCLP tests for As leachability should be performed at least in **zero-headspace** vessels or preferably under nitrogen to minimize the oxidation of Fe(II) to ferric(hydr)oxides. In long-term leaching studies ([similar to]68 days), it was found that the low solubility of the SSM ensured that rate of release of As was relatively slow, and the resulting leachate concentrations of As were below the current Australian guideline concentration for arsenic in drinking water. \$CPY 2005 Elsevier Ltd. All rights reserved. 59 Refs.

L3 ANSWER 13 OF 17 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 2004(50):520 COMPENDEX

TITLE: Microcosm studies on anaerobic phosphate flux and mineralization of lake sediment organic carbon.

AUTHOR: Song, Jing (State Key Lab. Soil/Sustainable A. Institute of Soil Science Chinese Academy of Sciences, Nanjing 210008, China); Luo, Yongming; Zhao, Qiguo; Christie, Peter

SOURCE: Journal of Environmental Quality v 33 n 6  
November/December 2004 2004.p 2353-2356  
CODEN: JEVQAA ISSN: 0047-2425

PUBLICATION YEAR: 2004

DOCUMENT TYPE: Journal

TREATMENT CODE: Experimental

LANGUAGE: English

AN 2004(50):520 COMPENDEX

AB Lake sediment has long been recognized as an important source of nutrients such as phosphorus. To gain a better understanding of phosphorus flux at the sediment-water interface, it is crucial to investigate the sediment porewater. There is also growing concern and interest in identifying whether organic-rich sediment is an important source of greenhouse gases such as CO<sub>2</sub> and CH<sub>4</sub>. In the present study, we took sediment samples from West Lake, a shallow hypereutrophic lake in Hangzhou, Zhejiang Province, China and incubated subsamples under anaerobic conditions at 25deg C for 182 d using a specially designed microcosm that permits repeated **extraction** of sediment porewater and sampling of **headspace** gases. Anaerobic phosphate fluxes and mineralization of sediment organic carbon were measured. Average diffusive flux of soluble phosphorus was 0.81 mg P m<sup>-2</sup> d<sup>-1</sup> during the initial 18 d of incubation. Decomposition of sediment organic C followed **zero-order** reaction kinetics and methane accounted for about 50% of the mineralization products. The results suggest that organic-rich sediments can be important sources of P and methane under anaerobic conditions. Laboratory studies simulating field conditions and field studies are necessary to determine the contribution of sediment as a source of P and greenhouse gases. 12 Refs.

L3 ANSWER 14 OF 17 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 2003(25):2623 COMPENDEX

TITLE: Identification and leaching characteristics of sludge generated from metal pickling and electroplating industries by Toxicity Characteristics Leaching Procedure (TCLP).

AUTHOR: Vijay, Ritesh (Natl. Environ. Eng. Res. Institute, Nagpur, India); Sihorwala, T.A.

SOURCE: Environmental Monitoring and Assessment v 84 n 3 June  
I 2003 2003.p 193-202  
CODEN: EMASDH ISSN: 0167-6369

PUBLICATION YEAR: 2003

DOCUMENT TYPE: Journal

TREATMENT CODE: Theoretical; Experimental

LANGUAGE: English

AN 2003(25):2623 COMPENDEX

AB One of India's major concerns is the increasing level of land pollution largely due to the uncontrolled disposal of industrial solid and hazardous waste. With rapid industrialization, the generation of industrial solid and hazardous waste has increased appreciably and the nature of waste generated has become complex. Their impacts on the ecological bodies are noticeable. The article describes the details of studies conducted using Toxicity Characteristics Leaching Procedure, to estimate the toxicity effects of the metals viz., chromium, zinc, manganese, iron, nickel, cobalt and copper by the **Zero Headspace Extractor** for the sludges generated from effluent treatment plant of steel tube, wire and plating industries on environment constituents like groundwater, surface water and land. Toxicity Characteristics Leaching Procedure determines the mobility of organic and inorganic analytes of liquid, solid or multiphase waste from hazardous solid wastes in the form of primary and secondary **extracts**. These **extracts** are mixed in equal volume proportion and analyzed by Direct Reading 2000 spectrophotometer. The amount of heavy metals observed during the studies in the leachates were found and the results were compared with Hazardous Waste categories as per Indian Standards, TCLP regulatory limits given by United States Environment Protection Agency (USEPA) and Germany Leachate Quality Standards and it was observed that they were on higher side, needing a proper preventive concept of sludge management including handling, treatment, recovery and disposal. 17 Refs.

L3 ANSWER 15 OF 17 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 2000(49):9515 COMPENDEX

TITLE: Toxicity Characteristics Leaching Procedure (TCLP) studies for characterization of hazardous solid wastes from pickling and electroplating industries (case studies) and design of secured landfill disposal system.

AUTHOR: Sihorwala, T.A. (Shri G.S.Inst of Technology & Science, Indore, India); Vijay, Ritesh

MEETING TITLE: Proceedings of the International Conference on Solid Waste Technology and Management.

MEETING LOCATION: Philadelphia, PA, USA

MEETING DATE: 12 Dec 1999-15 Dec 1999

SOURCE: Proceedings of the International Conference on Solid Waste Technology and Management 1999.Widener Univ School Eng, Chester, PA, USA.p 43-50  
CODEN: 002508 ISSN: 1091-8043

PUBLICATION YEAR: 1999

MEETING NUMBER: 57487

DOCUMENT TYPE: Conference Article

TREATMENT CODE: Theoretical; Experimental

LANGUAGE: English

AN 2000(49):9515 COMPENDEX

AB Details of studies conducted using toxicity characteristics leaching procedure, to estimate the toxicity effects of the metals by the **zero headspace extractor** were described.Toxicity characteristics leaching procedure, determined the mobility of organic and inorganic analytes of multi-phasic wastes from solid wastes in the form of primary and secondary **extracts**.4 Refs.

L3 ANSWER 16 OF 17 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 1999(43):568 COMPENDEX

TITLE: Comparative effects of de-aeration and package permeability on ascorbic acid loss in refrigerated orange juice.

AUTHOR: Soares, N.F.F. (Cornell Univ, Ithaca, NY, USA); Hotchkiss, J.H.

SOURCE: Packaging Technology and Science v 12 n 3 1999.p

111-118  
CODEN: PTSCEQ ISSN: 0894-3214

PUBLICATION YEAR: 1999  
DOCUMENT TYPE: Journal  
TREATMENT CODE: Theoretical  
LANGUAGE: English

AN 1999(43):568 COMPENDEX

AB Several factors including pH, cultivar, **extraction** method, metal ion content and storage conditions affect the rate of ascorbic acid loss in refrigerated fruit juices. While oxygen permeation rate and product de-aeration also influence ascorbic acid loss, little comparative data on these two variables exist despite the potential usefulness of such data in optimizing the packaging of juice. De-aerated and non-de-aerated single-strength orange juices were packaged and stored at 7 degree C in experimental glass containers constructed with oxygen permeability rates of 0.35, 0.39, 0.43, 0.79, 1.18 and 1.60 ml/day/container at 7 degree C. The rate of ascorbic acid degradation inversely correlated with permeation rate for both de-aerated and non-de-aerated juices regardless of initial dissolved oxygen content. Degradation was best described by **zero-order** and first-order kinetics for de-aerated and non-de-aerated juices, respectively. **Headspace** volume had no effect on ascorbic acid loss in both de-aerated and non-de-aerated juices when nitrogen flushed. Juice in high oxygen permeability containers showed a faster decrease in ascorbic acid content, independent of initial dissolved oxygen content. These results indicate that both package barrier properties and de-aeration are major factors in maintaining ascorbic acid in refrigerated orange juice. (Author abstract) 12 Refs.

L3 ANSWER 17 OF 17 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 1989(2):16649 COMPENDEX

DOCUMENT NUMBER: 890215998

TITLE: Use of cryogenic size reduction to improve purgeable priority pollutant analyses in soil samples.

AUTHOR: Phillips, J.H. (Air Products & Chemicals Inc, Allentown, PA, USA); Potera, C.A.; Michalko, P.M.; Frost, J.H.

MEETING TITLE: Accuracy in Trace Analysis: Accomplishments, Goals, Challenges.

MEETING ORGANIZER: NBS, MD, Gaithersburg, USA

MEETING LOCATION: Gaithersburg, MD, USA

MEETING DATE: 28 Sep 1988-01 Oct 1988

SOURCE: Journal of Research of the National Bureau of Standards (United States) v 93 n 3 May-Jun 1988.292p  
CODEN: JRN BAG ISSN: 0160-1741

PUBLICATION YEAR: 1988

MEETING NUMBER: 11666

DOCUMENT TYPE: Journal

TREATMENT CODE: Experimental

LANGUAGE: English

AN 1989(2):16649 COMPENDEX DN 890215998

AB The Environmental Protection Agency (EPA) has proposed the Toxicity Characteristic Leaching Procedure (TCLP) to identify wastes which pose a hazard due to their potential to leach toxic species. Because the determination of volatile species was important, a **Zero Headspace Extractor** (ZHE) was designed to prevent volatile loss during leaching. A shortcoming of the proposed volatiles analysis is that a tradeoff had been made between size reduction and volatile loss. At the 20 mg/kg spike concentration, recoveries ranged from 1.2% to 20%. Recoveries never approached 100% because a significant portion of volatiles was lost to the atmosphere. On a relative basis, cryogenic size reduction improved recoveries three-fold over ambient and minimum size reduction techniques. Cryogenic grinding was clearly the best size reduction technique for the preparation of samples for volatile analysis. Advantages were increased analyte recovery, better sample

homogeneity, and improved **extraction** efficiency.

```
=> s extract? (s) (sorptive near8 resin or ?sorbent)
L8      5867 EXTRACT? (S) (SORPTIVE NEAR8 RESIN OR ?SORBENT)
```

```
=> s l8 and zero (s) head (8w) space (s) extract?
L9      0 L8 AND ZERO (S) HEAD (8W) SPACE (S) EXTRACT?
```

```
=> s l8 and partition?
L10     118 L8 AND PARTITION?
```

```
=> s l8 and (volatile (s) organic (s) compound or VOC)
L11     111 L8 AND (VOLATILE (S) ORGANIC (S) COMPOUND OR VOC)
```

```
=> s extract? (s) (sorptive near8 resin or ?sorbent) (s) (membrane or dialysis
near8 (bag or membrane))
MISSING OPERATOR 'NEAR8 (BAG'
The search profile that was entered contains terms or
nested terms that are not separated by a logical operator.
```

```
=> s extract? (s) (sorptive near8 resin or ?sorbent) (s) (membrane or dialysis (8w)
(bag or membrane))
L12     145 EXTRACT? (S) (SORPTIVE NEAR8 RESIN OR ?SORBENT) (S) (MEMBRANE
OR DIALYSIS (8W) (BAG OR MEMBRANE))
```

```
=> s l12 zero (8w) head (8w) space (8w) extract?
MISSING OPERATOR L12 ZERO
The search profile that was entered contains terms or
nested terms that are not separated by a logical operator.
```

```
=> s L12 zero (8w) head (8w) space (8w) extract?
MISSING OPERATOR L12 ZERO
The search profile that was entered contains terms or
nested terms that are not separated by a logical operator.
```

```
=> s L12 and zero (8w) head (8w) space (8w) extract?
L13     0 L12 AND ZERO (8W) HEAD (8W) SPACE (8W) EXTRACT?
```

```
=> s L12 and zero (s) head (8w) space (s) extract?
L14     0 L12 AND ZERO (S) HEAD (8W) SPACE (S) EXTRACT?
```

```
=> s L12 and zero (s) head (8w) space
L15     0 L12 AND ZERO (S) HEAD (8W) SPACE
```